

Notice of Allowability

Application No.

10/595,607

Examiner

Shih-Chao Chen

Applicant(s)

KORVA ET AL.

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed on Apr 28, 2006.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 5/8/06, 7/11/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


SHIH-CHAO CHEN
PRIMARY EXAMINER

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

On page 1, after line 1, insert --BACKGROUND OF THE INVENTION--.

On page 3, after line 30, insert --BRIEF SUMMARY OF THE INVENTION--.

On page 4, after line 26, insert --BRIEF DESCRIPTION OF THE DRAWINGS--.

On page 5, after line 7, insert --DETAILED DESCRIPTION OF THE INVENTION--.

ABSTRACT

A multiband planar antenna intended for small-sized radio devices and a radio device. The basic structure of the antenna is a two-resonance PIFA, the radiating plane (320) of which has a structural part (321) corresponding to the lowest operating band and a structural part (322) corresponding to the upper operating band. In addition, a loop resonator (323) operating as a radiator is formed in the radiating plane. The ground conductor (325) of the feed line of the loop is at the same time the short-circuit conductor of the PIFA. The second conductor (326) of the feed line is connected to the opposite end of the loop, and it operates as the feed conductor of the PIFA. At the same time the structural part (321) of the radiating plane that corresponds to the lowest

operating band is located between the loop and the structural part of the PIFA that corresponds to the upper operating band, in order to reduce the interference between them. The resonance frequency of the loop radiator is arranged on the upper operating band of the antenna, for example. Thus the loop improves the matching of the antenna on the upper operating band and the matching and efficiency on the lowest operating band as well. This is based on additional inductance caused by the loop conductor (323) that functions as a part of the feed conductor of the PIFA.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 5/8/06 & 7/11/06 has been considered by the examiner.

Allowable Subject Matter

4. Claims 1-9 are allowed.
5. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 1-9 is the inclusion of the limitations of the radiating plane further comprises a conductor loop starting from the feed point, joining the rest of the radiating plane close to the short-circuit point and ending at the short-circuit point for forming a loop radiator and for improving the antenna matching on the lowest operating band, and a part of the first conductor branch is located between the conductor loop and the second part. It is these limitations found in

each of the claims, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Dai et al. (U.S. Patent No. 6,897,810) teaches a multi-band antenna includes a ground patch, a first radiating patch, a second radiating patch, a connecting patch connecting the first and second radiating patches with the ground patch, and a feeder cable. The ground patch and the feeder cable form a planar inverted-F antenna (PIFA), and the first radiating patch, the connecting patch, the ground patch and the feeder cable form a loop antenna. However, Dai et al. does not disclose and teach a part of the first conductor branch is located between the conductor loop and the second part.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Thursday from 7 AM to 5:30 PM, Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on (571) 272-1662. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shih-Chao Chen
Primary Examiner
Art Unit 2821

Shih-Chao Chen
SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
December 11, 2007